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ABSTRACT

Classical research operations in the cognitive sciences concern categorizations as well as classifications, and have been strongly influenced by nomological approaches. As a consequence, information processing has been explained with reference to syntactic-semantic models. Because of an absence of structural implications, personal interpretations have had great impact on the presentation of results of relevance to the cognitive sciences. In contrast, this article deals with the concept of "process" and an approach that takes its departure from text-building behavior and the oscillations of this behavior. The task of process is to give expression to textual movements and the dynamics of movements. With respect to this investigation, which analyzes text produced in an interview with an official of a municipality, quantitative transformations of scale as well as frame of reference have made it evident that a nonmechanical coupling of intention and orientation captures the perspective underlying a verbal flow without the mediation of organizational processes. The analysis reveals that verbal flows are structuring the textual system directly by producing their own internal constraints. Morphological profiles of speech patterns have been produced. It is characteristic of these profiles that they manifest time-dependent system states and state attractors. These are the results of an interplay of perspective and objective. The discovery of recursive phase singularities constitutes a significant discernment of the involved physical mechanism. (Contains 1 table, 12 figures, and 11 references.) (Author/SLD)

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1997 No. 62

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Abstract

The classical research operations in the cognitive sciences concern categorisations as well as classifications which strongly have been influenced by nomological approaches. As a consequence, information processing has been explained with reference to syntactic-semantic models. Because of an absence of structural implications, personal interpretations have had great impact on the presentation of results of relevance to the cognitive sciences. In contrast, and central to the present article is the concept of "process" and an approach that takes its departure in text building behaviour as well as the oscillations of this behaviour. As a result, morphological profiles have been produced. Characteristic of these profiles is that they manifest time-dependent system states and state attractors. These are the result of an interplay of perspective and objective within the AaO paradigm. The discovery of recursive phase singularities constitutes a significant discernment of the involved physical mechanism.

A verbalisation of observations requires an input of energy and a transformation of its continuous flow into a textual system. As a natural system, it becomes structured by this flow through its own internal processes. Hence, studying the textual system means studying flow processes and changes in theses flows instead of studying text. Approaching text building behaviour this way has shown that a manifestation of developed structures is dependent on the condition that these flows can be transformed into a cyclic displacement of textual elements. In the present study, Scanator methodology will be applied with the purpose of making apparent to what extent a phase-dependent displacement of a verbal flow can be utilised in the establishment of structure. By contrasting a cyclic displacement of textual elements with an angular displacement, it will be demonstrated that degree of structure can be coupled to the manner in which the units of action are assembled. In a conservative assembling of strings of graphemes, each cycle implies a certain loss of structural information. In measuring these losses, two distinct approaches have become valid:

(1) In the first case is the modelling restricted to a strict processing of presence (1) or absence (0) of a value in the two operating components. Hence, the affinity between textual agents and objectives is limited to a processing in the all-none fashion.
(2) In the second case, processing is made dependent on the oscillations in a verbal flow. Hence the work attained, is determined by the oscillator components of the textual system.

In both approaches are utilised those textual joints and links that are involved in gating the verbal flows. A potential function is generating variations in these flows that are helpful in the identification of local minima. Imposing different restrictions means differences in the recognition of an evolving structure. Likewise, its development into a morphological profile will differ.

Because minima are generating the forces operating in text production, it is of principle interest to search for developing minima. Based on the assumption that stability and change are complementary, a strategy is followed that utilises the coupling of textual agents with textual objectives. This strategy is founded in the source-sink relation of these components and will make it possible to continue the identification of local minima and maxima. Their detection and specification will lay the ground for an extraction of the morphological profile of a text and thus, will make possible a description of its structure.

With reference to the variations becoming manifest in a morphological profile, a first guiding hypothesis may be formulated concerning the evolution of a structure.

Hypothesis 1: Establishment of Point Attractors
Textual agent and textual objective are represented by singular points. Thus, any singular point is strictly connected to an individual string of graphemes. These are the terminals. Assembling terminals into clusters means an agglomeration and in case of a recycling a recursive exposure. Each step taken, provides for the following courses.

(1) Any established cluster is remaining unchanged and the cyclic processing is setting up a new cluster.
(2) Recycling is producing a change in the grouping of individual strings. A previously clustered string of graphemes may disappear from its cluster in order to become the member (value) of a new cluster. Adding a new string to an already existing cluster or moving of a string from cluster to another may require a change in the naming of the cluster.

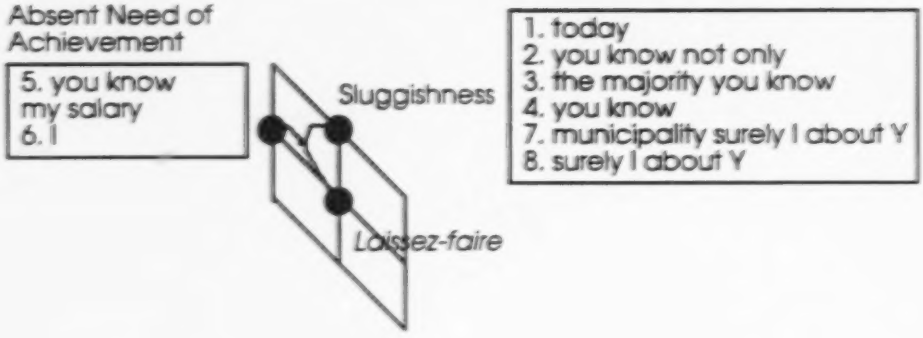
The Conservative Processing of Viewpoints

The text produced in an interview with a municipality officer has previously been analysed and discussed with reference to the topological representations of the Figure-component of this text as shown in the Figures 1and the response surface is given in Figure 2 (B. Bierschenk, 1996a). In a conservative processing, reallocation is easily attributed to the affinity relation which in Figure 3 affects the forming of a new cluster, namely Cluster 3. The second run takes into account new information, that has become available in taking a further step in the processing (see App. Tab. 1, Block 13).

Grouping and regrouping of the individual strings into clusters invariably begins with a formal definition of a cluster. In the present approach, each individual string of graphemes constitutes its own cluster, which by definition has an Error Sum of Squares (ESS) of zero. This means that no information has been lost.

Figure 1.

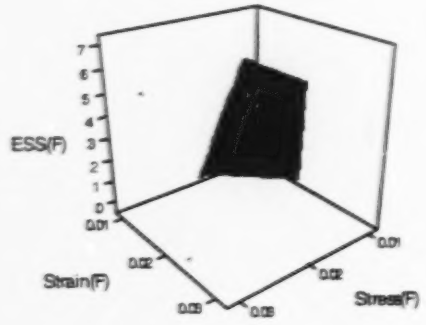
Run 1:Holotop of Conservative Processing of Textual Viewpoints[1]



[1] Reconstructed from "The Measurement of Perspective Change through Textual Movement Patterns" by B. Bierschenk, 1996 a, *Kognitionsvetenskaplig forskning*, 59, p.17.

Figure 2.

Run 1: Surface Layout of Cyclic Processing of Textual Viewpoints

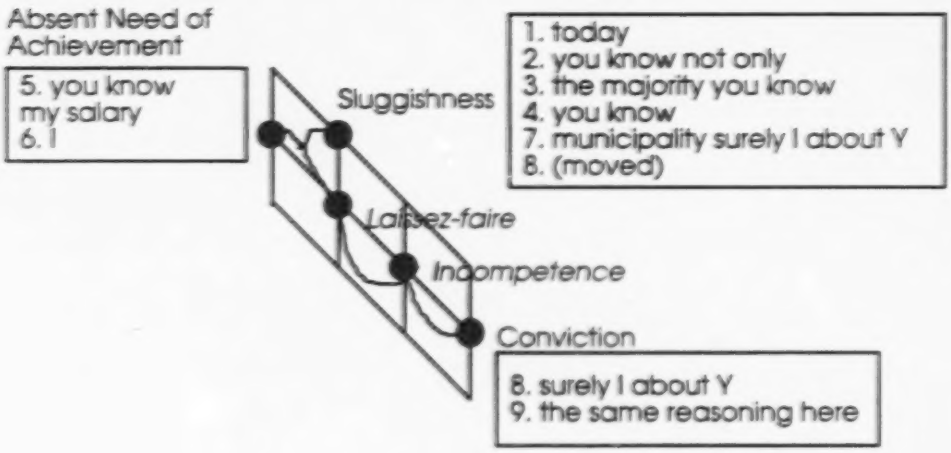


Hence, assembling pairs of clusters requires a testing of losses of information for all possible combinations of pairs. Two individual clusters are fused whose agglom-

eration shows the least increase in ESS. By running through the clustering a second time, it is possible to study losses and redistribution in the light of added information. The cycling process, manifested in the Appendix, Table 1, shows that the textual agent ('municipality surely I about Y') has a governing function that is affecting the clustering process. On the basis of the affinity relation constituted by this agent, it can be expected that a course develops that confirms the second prediction of hypothesis 1. In moving from Figure 1 to Figure 3 it is evident that string (No. 8) has left Cluster 1. This is marked in Figure 2 with (moved). Illustrative of the effects of reallocating information can be studied with reference to Figure 4.

Figure 3.

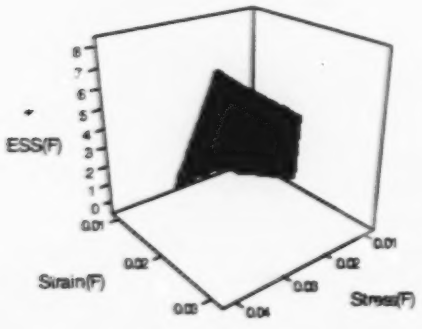
Run 2: Holotop of Conservative Processing of Textual Viewpoints



In the cyclic mode of information processing, the new cluster has not only absorbed new information, but also affects the structural configuration. The texture of the surface layout marks the effect with an expanding skyline. In this sense, the change of the developing process is smooth. Figure 4 is indicative of a continuation of the course taken. Specifically, it is string (No. 8) that is changing its participation.

Figure 4.

Surface Layout of Cyclic Processing of Textual Viewpoints



In the interview, the official seems to progress toward a state (string No. 9) where he is proofing the worker guilty of refusing his aspiration of guiding or directing the work force. Hence the proper specification of this state is "Conviction". In connecting to the previous discussion (B. Bierschenk, 1996 a, pp. 16-17) it is worth noting a conceived general lag of control in the municipality. This view seems to be the source of the resulting State. This state is terminal and is concentrating information on the workers maintenance of a "hands-off" style of conduct. When attracted into a new state, the individual worker becomes designated as part of the work force of the municipality. This force is conceived of as being incapable of making rational judgements and choices. Hence the terminus *"Incompetence"* is a proper inscription of the top of Figure 4.

The Non-Conservative Processing of Viewpoints

A non-conservative and thus phase-dependent processing of information is the foundation of Figure 5 and 6. Phasing as source of oscillation takes care of the viewpoint-agent affinity through "deep" co-ordination. However, this can be achieved only when the textual system is allowed to determine timing on its own internal conditions. Furthermore, a phase-dependent processing of viewpoints, as shown in Figure 6, determines a higher degree of textural detail. Hence, a component is at work that determines its oscillations. Under these circumstances, dissipation of viewpoints becomes dependent on the system's phasing activity.

Figure 5.

Run 1: Holotop of Phase-dependent Processing of Textual Viewpoints (Reconstructed from B. Bierschenk, 1996 b, p. 9 and refined).

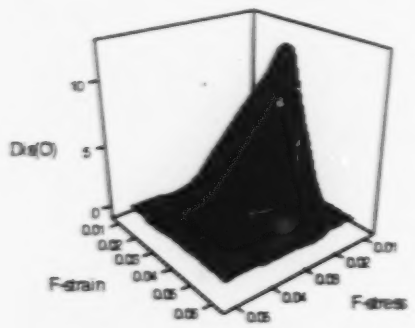
In comparing Figure 5 with Figure 3, it becomes apparent that important changes have emerged. The borders are now determined by the individual viewpoints instead of point attractors. It may be particularly useful to concentrate on the behaviour of string (No. 8). Running the clustering under the condition of phasing, this string together with string No. 7) become attracted by a point attractor that is specified by the terminus, *"Sluggishness"*. This point attractor deserves attention, because it is an

expression of an intensive. It suggests an idleness, founded on reliance in one-self (I). This means self-confidence. The stress is on removing doubt and on causing a feeling of satisfaction by informing confidently about one's behaviour.

This information were lost during the generation of Figure 1, where the context of these viewpoints is remarkably different. As part of a many-valued cluster, their structural significance had escaped. Figure 3, clearly shows some improvement in structural significance. But the prevailing condition of decline in performance is still undifferentiated. In contrast singular points as terminals generate a structure that illustrates great differences in the accessibility of structural information. Marked dissimilarities in structural detail can be observed by means of a comparison of Figure 4 with Figure 6.

Figure 6.

Phase-dependent Holophor of Textual Viewpoints



Beginning a synthesis with singular points as terminals generates profound differences in configurational outcome. In Figure 3, string (No. 9) was part of a cluster, occupying the third position in a sequence of three terminal states. A phase-dependent aggregation has changed its functioning completely. Single points as terminals instead of assemblies make evident that the second run has a profound impact on the structure. In contrasting the Holotop of Figure 5 with the Holotop of Figure 7, it becomes apparent that a single viewpoint can have significant influence on the developing path. Discarding the captions of assemblies, has as its consequence that all structural functions, associated with terminal state, disappear.

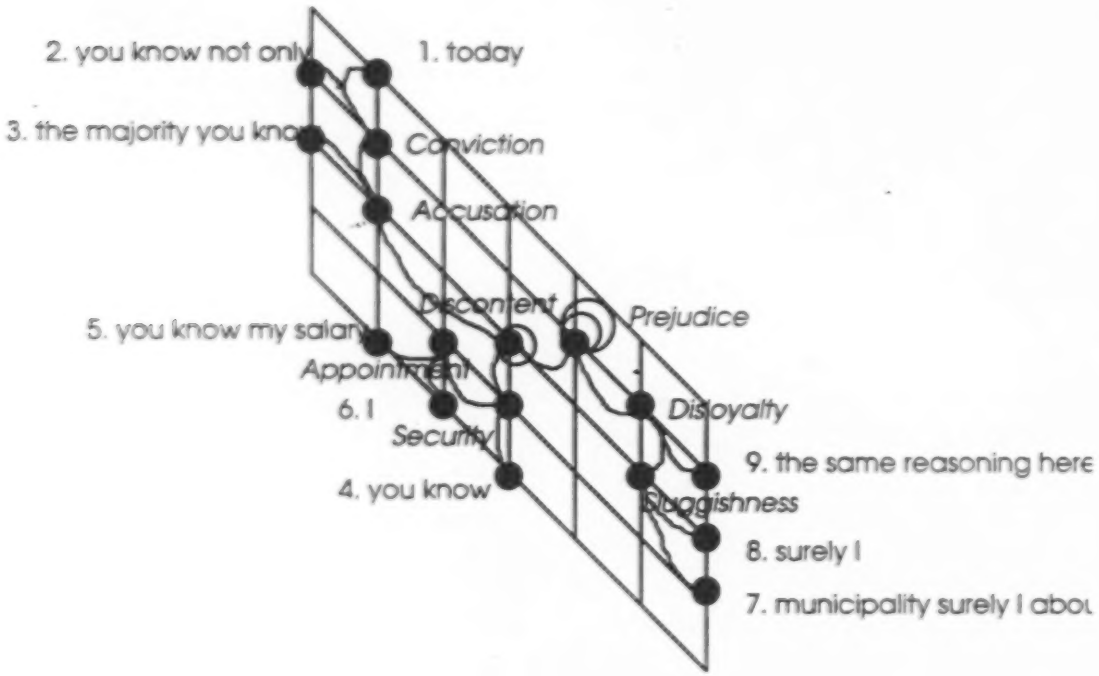
In returning to the behaviour of string (No. 8), it is evident that its value is close to string (No. 7), Figure 6 confirms this constellation. Through the addition of a new viewpoint an emerging change can be evaluated in Figure 7. By taking into account the contribution of string (No. 9), a new basis becomes apparent. The developing path is attracted toward the border and therefore, it is loosing in depth. The new singular point is terminal. It suggests the premise of judgement. Mentally, it is inferred that the phenomenon is widespread. Because it provides the basis for a transformation of the state of *"Prejudice"*, it is also changing structural depth through the emergence of a new state attractor, namely *"Disloyalty"*. This state is coupling the process to a higher degree of reliance on what is "imagined" instead of what is "conceived". It can be concluded that a re-grouping with additional information is confirming the expectancy of a higher degree of precision in the emerging structure.

Only a functional analysis can take into account string involvement and import. By transiting or passing a certain terminal, a particular point of view is controlling the

orientation in the progression of a developing path. It is worth noting that the new state attractor has emerged prior to the global state attractor. The quality of this change is attributable to the uncertainty associated with a border-line behaviour. Inferring the general appearance of faithlessness in people, the statement of a breach of public order or decency is taken as a fact. The fact of refusing subordination is determined as an act of offence that is upsetting the healthy functioning of the Swedish model, at least concerning the municipality of this officer.

Figure 7.

Run 2: Holotop of Phase-dependent Processing of Textual Viewpoints



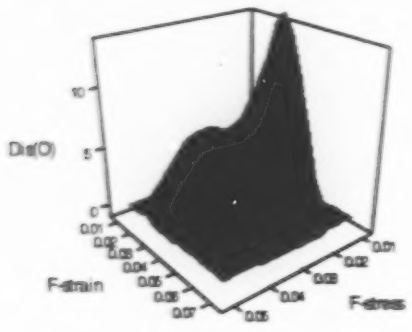
Common to the path of Figure 5 as well as that of Figure 7 is the observation that both are finalising in people's inability of acting in a reliable and faithful manner. The source for the transformation of "Disloyalty" into "Irresponsibility" is to be found in the point attractor "Sluggishness". It determines a state that is linking the process to the behavioural component, namely worker performance below normal rate or level. Each linkage has its base in a distinct constellation of singularities.

As shown in Figure 8, each step has a certain effect on the transformations that are specifying the resulting spectral composition of singularities. Specification is varying, dependent on the position of an attractor in the sequential development of an adiabatic trajectory. Characteristic of the workers of this municipality as well as outside its borders is an absence of showing due care for the consequences of one's behaviour. Mentally, they are judged to be insensitive to account by higher authority and therefore judged untrustworthy.

The shape shown in Figure 8 allows the conclusion that a non-conservative processing performs the establishment of a response surface that reflects a higher degree of precision compared to the response surface of Figure 4. Moreover, Figure 6

Figure 8.

Phase-dependent Holophor of Textual Viewpoints



and Figure 8 validate a certain measure of identity as a consequence of the developed trajectories. Moreover, a significant structural change can be observed. Clearly, a hysteresis is changing the appearance of the Holophor. A new and deeply embedded attractor state is the source of the perceivable cleft.

A differentiating of structure implies that a new order is emerging. Characteristic of the resulting measure on attitude formation is its impact on the direction. A change in direction is intimately related to more or less profound restructuring. These observations lead to the formulation of a second hypothesis.

Hypothesis 2: Assembling Terminal Points

In a progressive stepping through a text, recycling after a single step may have a profound effect on the whole configuration. In attracting a point, the process can take on one or the other of the following courses:

(1) Structural change by expansion: Recycling a point is producing a smooth change in the succession of point attractors. This implies that a smooth path is developing.
(2) Structural change by reconfiguration: Recycling is producing a hysteresis. In this case a new state attractor of a new path comes into existence.

In conclusion, a cyclic mode of assembling viewpoints re-produces a structure that can serve as an approximation. Addition of viewpoints either may initiate a change in naming a cluster or may require some structural revisions. The more information is becoming available the better is the approximation becoming. In contrast, the phase-dependent mode of assembling viewpoints is re-producing more of fine structural details lying in the nested texture of a text.

Perspective Transformations

Common sense maintains that 'perspective' and 'viewpoint' are alternative expressions of one and the same phenomenon. For example, in various dictionary definitions, it is suggested that 'any picture in perspective' is an expression that equals 'a view', or 'vista', or 'point of view'. Moreover, conventions in scientific writing are manifesting this understanding further. An ambiguous or careless use of the preposition 'from', as in 'from an ecological perspective' instead of 'in' is only contributing to one's inability of grasping the novelty of the AaO approach.

However, essential for an understanding of the AaO paradigm is a comprehension of its ecological significance and a differential treatment of these concepts. On the kinetic level of text processing, their ecological functioning is basic for the following reasons. The Gibsonian paradigm of information processing requires the development of meaning to be dependent on changes of the viewpoints. More than one point of view of the same type has to be observed. The other requirement is that the point of observation can change so that the points of view can be observed with different angular displacements. This double mechanism of change prevents the points of view and observation from becoming a "blind spot". On the other hand, "spots" are the prerequisites of logic. A logical analysis may be useful, but one should bear in mind that spots can only occupy space. Terrestrial surroundings of living systems must be studied with faces and facets in mind. On the kinetic level, every facet undergoes constant transformations. Transformations are coupled with changes in the points of observation, which involves their timing. Dependent on timing and affinity, corresponding viewpoints generate informational flows.

Shallow Transformation

In general, perspective transformation implies a redistribution of information. On the contrary, mechanical transformation requires a rigid coupling between textual agents and textual viewpoints. Until now, redistribution has been studied on sets of symmetric transformations over which the coupled pairs of textual agents and objectives subsist. As demonstrated in Figure 1, a result of this treatment is the emergence of a work-cycle. Moreover, a symmetric relation of this kind prevents the periodic pendular movement of the Agent component as well as the Objective component from overcoming the restrictions imposed on their joints. The only expected outcome can therefore be symmetric work cycles. With reference to Figure 3, this hypothesis will be validated on the basis of the connection matrix of Table 1.

Concerning the numbering of the clusters in Table 1, it should be noted, that the Agent component has 3 clusters, where the string (7) is the first string of the third cluster. The same indexing applies to the Objective component. A comparison shows an inequality between Agent and Objective (3:7 :: 3:8). The difference in numbering the first string of the respective cluster implies that a conservative mechanical cycle can be unstable. If the strings of graphemes are identical, it initiates a clearing procedure.

Table 1.

Connection Matrix of Figure 3

Agent	1	2	3
Objective	1	5	7
1:1	5		
2:5		2	
3:8			2

The result is a deletion of the duplicate. Only unique strings are allowed to participate in the process of assembling strings. However, a change in the number of strings agglomerated into a cluster is without impact on its conservational character. All perturbations, additions and deletions of strings of graphemes result in corresponding changes in the path defining the work cycle.

Deep Transformation

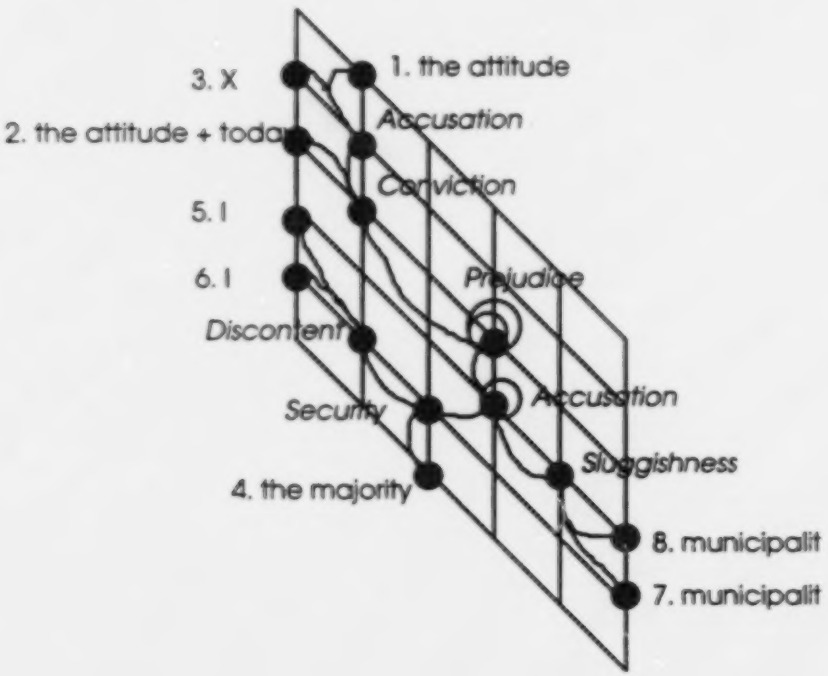
As presented (e. g. B. Bierschenk, 1993, p. 5), the characteristic property of the double helix is intermediate. It is showing the patterning in the dependency relation

between the Intentionality-Component, carrying the textual agents and the Orientation-Component, carrying the textual points of view. The organisational layout of points pertaining to the Agent and Objective respectively, makes use of two kinds of timing. In the first case, timing of the kinetic processes determines the transformations of potential energy to verbal flows. In the second case, timing concerns the irreversible thermodynamic flow processes. In the latter transformation, information is scaled down to verbal flows. Periodic working of the operating processes becomes terminate when a steady state (Fliessgleichgewicht) is achieved. A new phase in the processing is initiated when mechanical processes become reactivated. Corresponding flows are reversible, which implies that transformational processes are developing toward the generation of an equilibrium in the distribution of points. A visualisation of its dynamical transformations has been made available in antecedent publications. In Figure 9, this condition will be discussed with reference to the Gibsonian concepts of propriospecific and exterospecific information processing

Co-operative interaction between the Agent and Objective component provides for the distribution and re-distribution of the information flowing through the textual system. By disconnecting the components, it becomes possible to discriminate between different degrees of harmonic oscillation. Hence, separate treating of the oscillators

Figure 9.

Run 1: Holotop of Phase-dependent Processing of Textual Agents



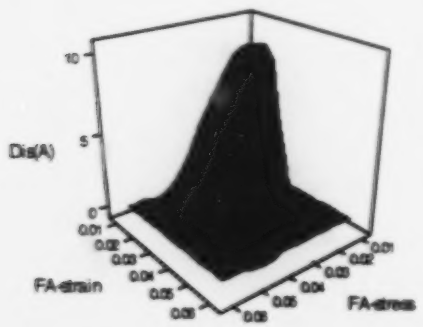
allows also for a study of their own individual amplitudes. Figure 10 shows the corresponding response surface. The mechanism of phase-dependent cyclic displacement takes care of the immediate occurring co-ordination of the corresponding Holophor.

Co-ordinative relatedness implies a dependency that has produced a response surface of the propriospecific information flow that is very similar to the response surface of the corresponding exterospecific information flow. Though their shapes differ with respect to altitude. This phenomenon, may be taken as an expression of a deep personal involvement. However, dependency refers also to the process of specifying

the path in the Agent component by means of the termini of the corresponding path in the Objective component.

Figure 10.

Run 1: Phase-dependent Holophor of Textual Agents



In the effort of maintaining extracted structural information, a mechanism has been detected that implies a cyclic displacement of the termini in the Figure component. Its functioning is remarkable, because it separates the propriospecific and exterospecific aspects of information processing. The functioning may be explained by describing the co-ordination of Agent and Objective in some greater detail.

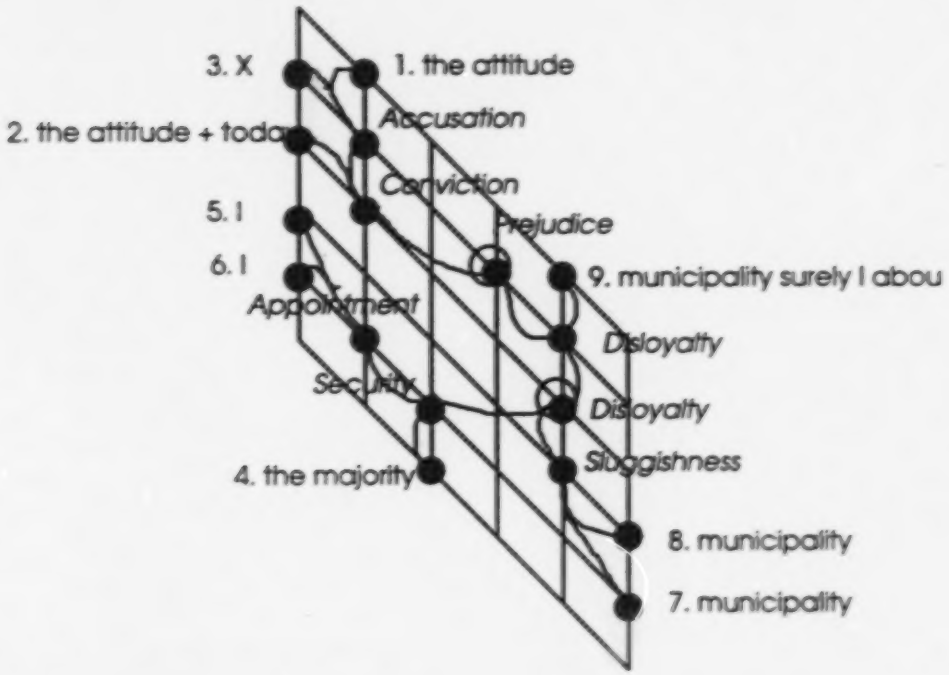
Basically, both components control each other, because their interactions are complementary. The first one is carrying the intention of the text producer, while the second one is carrying the orientation. Consequently, there is no meaning in a text. Meaning of an event develops in relation to the discontinuities in an information flow. Since it can be assumed that the viewpoints reflect what has come in focus, a topological layout of their structural configuration shows how the text producer has used ecological significant information.

Because text building behaviour comprises processes, changes and sequences as a result of personal involvement, it can be hypothesised that the text producer's emotion is encompassed in text production. This personal aspect will be subsumed under the Latin personal pronoun "ego". Hence, egomotion concerns the style of conduct of municipally employed workers. Their style seems threatening enough in order to be conceived of as a blow in the face of the official.

Considering the Holotop of the Agent component with imagined or actual danger in mind, it is immediately perceivable that the path provides information on the process of judgement. Clearly, the Holotop shows a re-organisation of the termini of the Figure component. This process accentuates the emotional quality of the appearing dimensions. The depth in the perspective transformation relates the judgement of possible consequences to a propriospecific component, namely "Prejudice". With references to its complementary role, re-distributed information contributes with enhancement of the "ecological validity" of the Objective component. This is a concrete prediction that will be tested with reference to Figure 11. The procedure of adding stepwise new information aims at testing the prediction of changes toward further enhancement of the ecological validity of the Agent component. Figure 11 determines the changes in structure. By introducing an new viewpoint,

Figure 11.

Run 2: Holotop of Phase-dependent Processing of Textual Agents



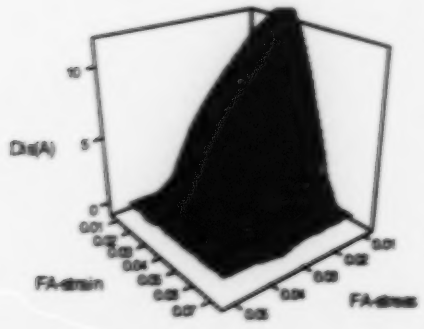
the angle of articulation is changing. Since this change is interacting with and dependent on a change in the angular articulation of the corresponding textual agent, it is a proper basis of testing, if the direction of change agrees with expectation. Evidence of a significant shift in orientation comes from the observed discontinuity in the information flow. The resulting hysteresis is initiating a shift from egomotion toward ego-orientation. This shift is specified by the terminus *"Disloyalty"*, which carries cognitive motion instead of emotion. This kind of change twines together feeling and cognition and manifests itself in the terminus *"Irresponsibility"*. It follows that an untwisting of perspective and objective structure permits the appearance of analogous changes in complexity of the corresponding response-surface. Evidence of this relationship is produced through the Holophor of Figure 12.

If Figure 12 is compared with Figure 10, the change can be apprehended immediately. The altitude of Figure 12 has been shifting in to a less pronounced degree of depth. Hence, the flow dynamics underlying the macroscopic patterning provides a unique characteristic of the harmonic oscillation of the individually oscillating components. The intended verbal expression has contributed to the order parameter whose dynamic is attracting the textual system to the pattern that is required in text building. Its specification has contributed to a description of the system that can be communicated.

This is the starting point from which demonstrated pattern dynamics and structural invariance can be used scientifically in order to determine what kind of influence specific parameters have on the changes that occur in the behaviour space of the system. More specifically, the dynamics at the kinetic level is contributing to a pattern formation process in which the control parameters show that the textual system is surprisingly sensitive to the verbal flow field dynamics. Its geometric property is reflecting

Figure 12.

Run 2: Phase-dependent Holophor of Textual Agents



this sensitivity in the reoccurrence of *"Sluggishness"* in Figure 9 and *"Irresponsibility"* in Figure 11. These are indicative of a looping of the flow between Block 11 and Block13. Thereafter, the flow is continuing into Block 14 and thus into a new phase.

As Winfree (1980, p. 28) observed: "The science comes in locating and making use of the discontinuities and the discovering which of many alternative mechanisms underlie its particular character." The recurrences of a phase singularity is structural and constitutes in the present case a profound discovery of the significance of recursive operations in the double helix. This means that propriospecific and exterospecific information has been completely integrated within the boundaries determined.

Discussion

The classical approach to the study of perception and cognition is fundamentally based on Hume's doctrine that percepts and concepts actually present in the mind constitute the sole object of knowledge. The objects of perception themselves are remaining beyond inquiry. Therefore, the theories of perception and cognition are made dependent on some form of unconscious inference (Helmholtz ,1954; Hofstätter, 1964). Helmholtz developed the theories of hearing and vision and provided the mathematical background for the law of the conservation of energy (Chaplin, 1985). According to him, purely physiological concepts are inadequate. There is no world of neutral, objective and mutually exclusive stimuli. They have to be categorised and classified. It is important to note that his emphasis is on "unconscious inference" and "unconscious conclusions" as concepts that explain mental phenomena.

Typing and consequently the assignment of primitives, single or aggregated, to classes is an active process of fitting cognitive structures (hypothesised objects, scenes and events) to selected sensory tests. It is important to note that knowledge and understanding are empirically limited to appearances. This requires conditioning of stimuli. In the logical sense, it means that members of a class are determined by homologous features. But the most common solution supposed, is a categorisation of the phenomenon and some computational procedures that are operating in the imaging or classification.

A variety of experiments has shown that this kind of feature analysis together with the assumptions of predicate logic is an inadequate frame of reference. Mental calculation as a means of determining constancy cannot account for the non-

mechanical coupling between the components of intention and orientation. Clearly, computational accessibility of geometric primitives is no substitute of the qualitative invariance that relates to the ordering of natural periods and amplitudes as a function of perceptual changes.

The normative perspective imposed on categories has been impaired by taxonomic theory. This theory has been developed with the purpose to avoid the design of artificial configurations. On the premise that natural systems are not arbitrary, Sokal and Sneath (1963) have proposed the terms natural taxa and prototypes. Members of a natural group are determined by analogous features. However, if membership is judged with respect to increasing or decreasing similarity to an example or prototype, still, things are equated with sense impressions (Ghiselin, 1981, p. 273). What is actually achieved by prototyping is pointing at a part of some whole.

Thus categorising and prototyping make apparent internal structures that contradict the assumptions of the phenomenalist. Examples of prototyping are given in Figure 1 and Figure 2. What matters here is the organisation of what has been expressed and not language itself. On the other hand, prototyping does raise serious problems, because of its confusing reference to (1) typical instances of a class (2) averages or (3) schemata.

The fundamental concept in the present report is "process". Its task has been to give expression to textual movements and the dynamics of movements. With respect to the reported experiment, quantitative transformations of scale as well as frame of reference have made evident that a non-mechanical coupling of intention and orientation captures the perspective underlying a verbal flow without the mediation of organisational processes. But capturing the flow from a source to a sink is not enough. What is needed to enable a pick-up device to extract Higher-Order-Variables is the observation of discontinuities that are breaking the homogeneity of a flow (Elstrup Rasmussen, 1997; Kelso, 1995).

The basic ecological assumption is that richness of information is produced directly. Evidence comes from the textural layout of the textual system. The reported analysis has revealed that the verbal flows are structuring the textual system directly by producing their own internal constraints. Internal constraints have been shown to be specific and capable of accounting completely for the properties of the verbal flow fields. Moreover, the angular displacements of textual elements allow for an analysis of patterns and pattern dynamics. By taking its point of departure in the text building behaviour, Higher-Order-Variables directly specify objective and perspective.

Evidently, the double helix reveals an intimate production-perspectivation linkage. What has been manifested in the present report is the circular causality between perspective and objective. The profound discovery concerns the switching between textual agents and textual objectives which appears at exactly the same point at which a jump in the angular articulation occurs. The relative changes in the phasing result in recursive singularities. The relevant information of the produced speech pattern lies in the point and state attractors that characterise the morphological profile.

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Appendix

Table 1.

Unfolded Interactive Relationship: Reproduced from B. Bierschenk (1996, Tables 3-8)

Codes	Swedish	English	ln(θ + 1)
00	.	.	
01 Block 1	[att]	[that]	
30	$\varnothing_A$	*X*	0.00000
40	Titta	Look	
60	på $\varnothing_O$	*(the attitude + today)*	8.08476
01 Block 2	hur	how	
30	inställningen	the attitude	3.80666
40	är	is	
50	idag	today	3.80666
01 Block 3	och	and	
30	det	it *(the attitude + today)*	8.08476
40	är	is	
50	ju	you know	3.80666
50	inte	not	
50	bara	only	
60	bland	among	3.80666
60	de	the	
60	kommunalt	municipally	
01 Block 4	[att]	[that]	
30	$\varnothing_A$	*(X)*	4.49981
40P	anställda	employed	
50	$\varnothing_O$	*(the majority + you know)**	4.9981
01 Block 5	,	,	
30	de	the	3.80666
30	flesta	majority	
40	tycker	thinks	
50	ju	you know	3.80666
01 Block 6	att	that	
30	jag	I	3.80666
40	har	have	
50	ju	you know	3.80666
50	min	my	
50	lön	salary	
01 Block 7	,	,	
01	varför	why	
30	$\varnothing_A$	*(I)*	3.80666
40	ska	shall	
50	jag	I	3.80666

Table 1.

Cont.

Codes	Swedish	English	ln(θ + 1)
01 Block 8	då	then	
30	$\emptyset_A$	*(I)*	3.80666
40	hjälpa	help	
60	till $\emptyset_O$	to *(I + with municipality + surely I+ about Y)*	11.49992
70	med $\emptyset_O$	with *(I + with municipality + surely I+ about Y)*	11.49992
01 Block 9	att	that	
30	$\emptyset_A$	*(I)*	3.80666
40	komma	finding	
60	på $\emptyset_O$	out *(municipality + surely I + about Y)*	7.61332
01 Block 10	hur	how	
30	kommunen	municipality	3.80666
40	ska	shall	
50	$\emptyset_O$	*(municipality + I surely + about Y)*	7.61332
01 Block 11	[att]	[that]	
30	$\emptyset_A$	*(municipality)*	3.80666
40	spara	safe	
50	$\emptyset_O$	*(municipality + surely I + about Y)*	7.61332
01 Block 12	[att]	[that]	
30	$\emptyset_A$	*(municipality + surely I + about Y)*	7.61332
40	skiter	don't care a damn	
50	väl	surely	3.80666
50	jag	I	
60	i $\emptyset_O$	about *(Y)*	0.00000
00	.	.	
01 Block 13	[att]	[that]	
30	Det		
30	$\emptyset_A$	*(municipality + surely I + about Y)*	7.61332
40	är	is	
50	samma	the same	3.80666
50	resonemang	reasoning	
50	här	here	

Author Note

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